STERILE LIGATURES

with special reference to

LONDON HOSPITAL CATGUT

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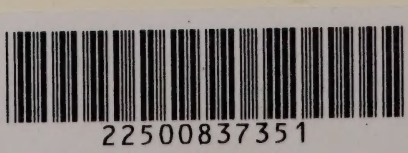


London Hospital Catgut

Sterile Ligatures prepared under conditions of strict asepsis.

SINCE Lister re-introduced catgut into surgical practice much thought and labour have been expended in attempts to produce a product of unvarying sterility. As known to-day catgut consists of the twisted intestine of the sheep. At first sight it would not seem difficult to obtain complete sterility combined with those other physical characters demanded by the surgeon, namely, tensile strength, suppleness, absorbability, etc.

Methods of Sterilization.

In practice it is found that while certain methods of sterilization are adequate in destroying infection, they nevertheless seriously impair tensile strength. Others leave nothing to be desired as regards tensile strength and suppleness but give doubtful sterility. Again sterility may be achieved at the expense of capacity for absorption, or as sometimes happens the

antiseptic employed may persist in the finished gut giving rise to irritation in the tissues when liberated during the process of digestion of the ligature.

In much of the work hitherto accomplished certain vital points have been overlooked, one of which is that in preparing the ligature questions other than those of disinfection and sterilization must be solved.

Catgut is animal tissue, and when introduced into a wound it becomes abnormal graft setting up by its presence a chemotactic action upon which the proper method of preparing the ligature has a very important influence.

Asepsis in Manufacture.

The London Hospital has given close attention to the subject, and with the assistance of the surgeon on the one hand and the bacteriologist on the other has exhaustively surveyed the whole of the methods available. This study has led to the conclusion that the perfect ligature can only be obtained by the commencement of antiseptic preparation immediately the intestine is removed from the animal, and further, that the separation of the muscular layer and the mucous layer from the sub-mucous coat of the intestine must also be carried out under completely aseptic conditions.

In the London Hospital the intestines are cleaned and handled under such conditions. The intestine is split and sterilized in the ribbon, twisted and again sterilized, thus ensuring that both the interior and exterior of the finished ligature are as free from micro-organisms as it is possible to make them.

Methods of Hardening.

The treatment of catgut by hardening agents, to render it more slowly absorbable, is a matter of great interest to modern surgical practice, involving the use of a suture that will last approximately for a specified time. It must be conceded that in most cases suppleness and tensile strength are lost with the production of a wiry and brittle ligature. On the one hand there is the danger that the catgut will be rendered entirely insoluble, and on the other that it will not persist for the necessary time. A very common property generally attributed to the method of hardening employed, is that of causing irritation in the tissue in which the catgut is embedded.

The London Hospital has made a special study of a new process (Morley's) with repeated tests over an extended period, so that there is now offered a hardened catgut that will persist for periods of 10, 20, 30 or 40 days, according to treatment, and which is readily absorbed after the time specified. Catgut treated by this process is guaranteed sterile; it is supple, its tensile strength is unique and it may be justly claimed that it is a perfect ligature. No chromic acid is used in the preparation.

Special Advantages.

It is believed that London Hospital Catgut satisfies all the requirements of the perfect surgical ligature, and that its introduction marks a new era in surgical catgut, probably the most important advance since it was re-introduced by Lister. The hospital authorities have therefore decided to afford surgeons and other

hospitals the opportunity of purchasing this prepared catgut, which is not offered experimentally but as a proved product which has been exhaustively tested in the operating theatres and in private practice by the surgeons of the London Hospital with very satisfactory results.

The following advantages are worthy of special note:

1. **The final sterility of the finished catgut is verified by bacteriological control.**
2. **The Ligature persists for the time specified and is readily absorbed after that period.**
3. **Its tensile strength is unique and its elasticity ensures a perfect knot.**
4. **Every Ligature is accurately gauged.**

For immediate surgical use this catgut is put up in sealed glass tubes. No label is inserted into the tube with the ligatures, but a description of the contents is engraved on the outside of each tube.

The dry-hardened catgut (for hospital use) is supplied in boxes containing 100 feet, together with the formulæ for sterilizing externally.

"London Hospital" Catgut costs but little more than other catgut, the object having been not to produce a cheap ligature, but to provide surgeons with a product prepared under completely aseptic conditions, of undoubted sterility, perfect absorbability, great tensile strength and which is accurately gauged.

Surgeons are invited to visit the laboratories of the London Hospital Ligature Department in order that they may see for themselves the unique aseptic conditions under which the ligatures are prepared.

Sterile Catgut for Immediate Surgical Use.

NOTE.—ABSORBABILITY OF HARDENED CATGUT.

"Ultratan" Catgut is actually absorbed in the muscle in the time specified on the label, 10, 20, 30 or 40 day, as the case may be. In the peritoneum and other serous membrane it persists for one quarter only of that time. This is a vital point, as heretofore surgeons, when they have wished to use a hardened catgut, have favoured a 20 day product because many of the so-called 20, 30 and 40 day catguts have persisted indefinitely for a much longer period.

In three varieties—

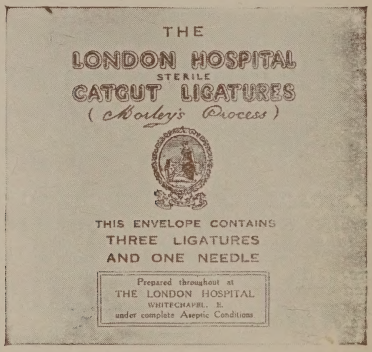
"ULTRATAN," CHROMICIZED & PLAIN NON-HARDENED GUT.

In glass tubes, three in a box. All standard sizes to resist absorption for 10, 20, 30 or 40 days.

Nos. 4/0 to 6 - **4/6** per box of 3 tubes.
Also in boxes of 1 dozen tubes, Nos. 4/0 to 6. One size only in each box. **16/-** per box.
In boxes of 1 dozen tubes 3 × 14" lengths in a tube, one size in a box. Nos. 4/0 to 6. **10/-** per box.

Finer sizes made to order.

CATGUT LIGATURES IN STERILE ENVELOPES.

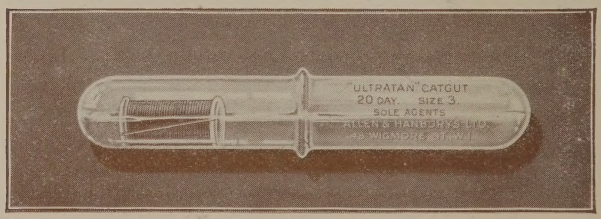


Dry in germ-proof envelope, 14 in. Catgut, fitted with straight, half-curved or curved triangular needle.

	Per pkt.
1 Ligature and 1 needle in envelope, sizes 4/0 to 6	8d.
3 Ligatures „ „ „ „	1/-
4 Ligatures without needle „ „ „	1/-

"ULTRATAN" CATGUT.

READY FOR IMMEDIATE USE IN CONJUNCTION WITH BONNEY'S WRIST LIGATURE HOLDER.



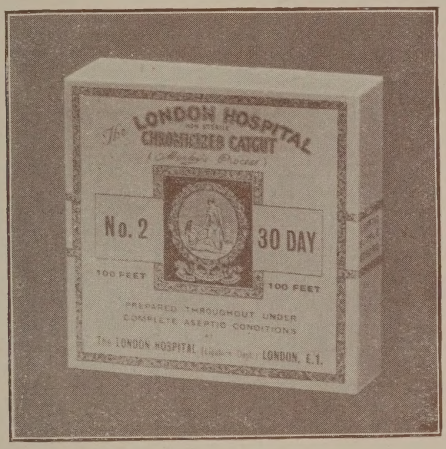
Lengths of 10 feet and 20 feet, of 30 day absorption, wound on china reel.

Nos. 1/0, 1, 2, 3 -	3/6 per tube of 10 ft.
Nos. 1/0, 1, 2, 3 -	6/- „ „ 20 ft.

Catgut for Hospital Use.

In lengths of 100 feet requiring external sterilization.

"ULTRATAN" and CHROMICIZED CATGUT.



To resist absorption for 10, 20, 30 or 40 days.

	Per box of 100 ft.		Per box of 100 ft.
No. 4/0 ...	10/6	No. 2 ...	22/-
,, 3/0 ...	12/-	,, 3 ...	25/6
,, 2/0 ...	13/6	,, 4 ...	27/-
,, 1/0 ...	15/-	,, 5 ...	28/6
,, 1 ...	18/6	,, 6 ...	30/-

Finer sizes made to order.

PLAIN NON-HARDENED (RAW) CATGUT.

	Per box of 100 ft.		Per box of 100 ft.
No. 4/0 ...	7/-	No. 2 ...	16/-
,, 3/0 ...	8/-	,, 3 ...	19/-
,, 2/0 ...	9/-	,, 4 ...	21/-
,, 1/0 ...	10/-	,, 5 ...	23/-
,, 1 ...	13/-	,, 6 ...	26/-

Finer sizes made to order.

FORMALIN CATGUT.

Formalin Catgut is the name generally applied to the product made by immersing a spun coil of catgut in formalin solution. The London Hospital Formalin Catgut is prepared by immersing the ribbon intestine in the formalin solutions before it is spun into the finished ligature. The catgut is therefore evenly treated throughout.

	Per box of 100 ft.		Per box of 100 ft.
No. 4/0 ...	8/6	No. 2 ...	19/-
„ 3/0 ...	10/-	„ 3 ...	22/6
„ 2/0 ...	11/6	„ 4 ...	25/-
„ 1/0 ...	13/-	„ 5 ...	26/6
„ 1 ...	15/6	„ 6 ...	28/-

NOTE ON EXTERNAL STERILIZATION.

All London Hospital Catguts can be sterilized by any well-known formulæ, but it is recommended that they be externally sterilized by immersing the gut for 75 hours in 1% Biniodide of Mercury in 60% Rectified or Industrial Spirit, and afterwards kept in 5% Carbolic Acid in 60% Rectified or Industrial Spirit. With most catguts the tensile strength is impaired when they are sterilized in iodine and they cannot be depended upon after a few weeks. Prolonged tests have proved that London Hospital "Ultratan" Catgut sterilized in iodine shows none of the above defects, but can be relied upon to retain its qualities unimpaired after being sterilized with iodine and preserved in iodine.

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